



Year Group	4	Term	Autumn 2	Subject	Science	Topic	Sound
						Key Question	KQ: How is sound made?
Prior Learning and other Curriculum Links	Year 3 Music - children have explored pitch					Skills Statements	<ul style="list-style-type: none">• I can explain how sounds are made, and show that some of them are linked to vibrations.• I can explain that vibrations from sounds travel through a medium to the ear.• I can find patterns between the pitch of a sound and features of the object that produced it.• I can show that there is a pattern between the volume of a sound and the strength of the vibrations that produced it.• I can show that sounds get fainter as the distance from the sound source increases.
Fundamentals	<ul style="list-style-type: none">• Identify how sounds are made, associating some of them with something vibrating.• Recognise that vibrations from sounds travel through a medium to the ear.• Find patterns between the pitch of a sound and features of the object that produced it.• Find patterns between the volume of a sound and the strength of the vibrations that produced it.• Recognise that sounds get fainter as the distance from the sound source increases.					Key Facts/Sticky Knowledge	<ul style="list-style-type: none">• Sound is made by air vibrating.• Sound is carried by soundwaves (amplitude). The louder the sound, the bigger the soundwaves.• Sound travels from air particle to air particle until it reaches your ear.• Pitch is how high or low a sound is. The shorter, tighter and thinner the instrument, the higher the pitch, because the soundwaves are smaller and faster.• Soundproofing is material which stops sound from travelling by absorbing the sound.

Our Curriculum Journey	<p>Stunning Start: N/A</p> <p>Journey: The children will start the topic in the hall as a year group and investigate the questions: are there different ways of making sound and how is sound made?, how do we hear sounds?, does the volume of the sound make a difference?, what is pitch?, how can we stop sounds from travelling?, what happens when sounds are further away?. Over the next four lessons they will look more in-depth at these questions and will make pan pipes, string and cup telephones, and undertake an experiment to investigate sound-proofing.</p> <p>Show stopper: N/A</p>		
Key Vocabulary (revisited)	Investigation, conclusion, fair test	Key Vocabulary (new)	Sound, loud, quiet, high, low, repeating, strike, blow, shake, pluck, vibration, vibrate, strength of vibrations, fainter, distance, pitch, particles

Pinner Wood Medium Term Planning

<p>Subject: Science - Good vibrations</p>	<p>Topic and Key Question: How is sound made?</p>
<p>Key Vocabulary:</p>	<p>Key Vocabulary: sound, loud, quiet, high, low, repeating, continuous, strike, blow, shake, pluck, vibration, vibrate, solid, gas, volume, strength of vibrations, sound source, fainter, distance, pitch, particles, question, investigation, fair test, change, measure, predict, prediction, explanation, observations, draw conclusions</p>

<p>Lesson Number:1 Location: upstairs hall</p>	<p>Learning objectives: To investigate sound - frequency, vibration, pitch.</p>	<p>Lesson Outcome: Children participate in experiments to do with sound</p>		
	<table border="1"> <tr> <td data-bbox="663 791 1624 1013"> <p>Introduction: Children come into the hall and are asked what sound is. They are asked whether they have an instrument with them all the time (their bodies/voice).</p> </td> <td data-bbox="1626 791 2045 1013"> <p>Resources Drum Rice Various instruments - recorder, triangle, tambourine, whistle, guitar)</p> </td> </tr> </table>		<p>Introduction: Children come into the hall and are asked what sound is. They are asked whether they have an instrument with them all the time (their bodies/voice).</p>	<p>Resources Drum Rice Various instruments - recorder, triangle, tambourine, whistle, guitar)</p>
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<p>Main Teaching including differentiation: Vibration: children investigate various instruments - recorder, triangle, tambourine, whistle, guitar - to work out how they make sound. However they make the sound (blowing, hitting, strumming), it comes from vibrations. Children put their hands over their ears and hum - the sound they can 'feel' are the vibrations in their head. Amplitude: rice is put on the top of a drum. The drum is hit three times, gently, more vigorously and then hard. The</p>				

	<p>children note how this affects the rice on top - the harder the drum is hit, the bigger the vibrations (soundwaves).</p> <p>Soundwaves: the children are told that sound passes from air particle to air particle - these are soundwaves. This is demonstrated by a whisper chain. The children are passing the sound as though they were particles of air.</p> <p>In a second experiment, the children stand at the back of the hall. Mr Ferriday stands in the middle of the hall and says something in his normal speaking voice. He does the same thing standing at the front of the stage, and then again at the very back of the stage. This demonstrates that the further soundwaves have to travel the weaker they become.</p> <p>Pitch: the children look at two different sized recorders. The same note is played on each recorder but the sound is different. This shows the children that the shorter, tighter and thinner the instrument, the higher the pitch, because the soundwaves are smaller.</p>	
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<p>Lesson Number: 2 Location: classroom</p>	<p>Learning objectives: LO - How is sound made?</p>	<p>Lesson Outcome: Children answer questions on how sound is made on Seesaw</p>	
	<p>Introduction: Starter Children discuss different ways of making sound, either with or without instruments</p>		<p>Resources iPads</p>
	<p>Main Teaching including differentiation: Vibration: children watch a video on making different sounds, writing down vocabulary that they hear in the video.</p>		

	<p>They learn that sound is made in different ways depending on the instrument. They are told that vibrations are there whether they can see them or not (remind the children of the drum and the rice). The children are encouraged to put their hand on their throat and say 'Ahhh'. They can feel their vocal chords vibrating.</p> <p>Amplitude: the louder the sound, the bigger the soundwaves. The quieter the sound, the smaller the soundwaves. This is called amplitude.</p> <p>Activity: Children answer questions on Seesaw: How is sound made? And How does the picture of the drum and rice 'show' sound?</p> <p>Challenge: Did how hard the drum was struck affect how the rice reacted? How and why?</p>	
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<p>Lesson Number: 3 Location: Classroom</p>	<p>Learning objectives: How do we hear sounds?</p>	<p>Lesson Outcome:</p>	
	<p>Introduction: Children are asked how sound is made, and use partner talk to discuss how sounds are being made in each of the pictures.</p>		<p>Resources Paper cups string Worksheets</p>
	<p>Main Teaching: Children recap how sounds get from the instrument to your ear (air particles).</p> <p>Children learn about how the sound travels through the air and what happens to it when it reaches your ear.</p>		

	<p>Children learn that a telephone turns soundwaves into electrical energy, which travels down the wires. When it reaches the other telephone it's converted back into sound and you can hear what the other person is saying.</p> <p>Teacher introduces a cup and string telephone and asks the children how they think it works. Then demonstrates how to make it.</p> <p>Activity In pairs children make a cup and string telephone. Teacher or TA takes a picture of the children 'using' the telephone.</p> <p>Children to complete differentiated sheet explaining how the telephone works. When pictures are printed they are added to the sheet.</p> <p>SEN/LA - Use the suggested key words to scaffold their explanation. MA/HA - Write their own explanations.</p>	
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<p>Lesson Number: 4 Location: Classroom</p>	<p>Learning objectives: What is pitch?</p>	<p>Lesson Outcome: Children to make pan pipes and explain how the different length straws make a different pitch.</p>
	<p>Introduction: Children recap teaching about pitch from group lesson in the hall.</p>	<p>Resources Straws Worksheets</p>
	<p>Main Teaching including differentiation:</p>	

	<p>Remind the children that pitch is how high or low a sound is. Then differentiate between amplitude (loudness) and pitch.</p> <p>Ask the children to discuss how we would change the pitch of different types of instrument families - wind, string, percussion. Explaining that the shorter, tighter and thinner the instrument, the higher the pitch, because the soundwaves are smaller and faster.</p> <p>Activity The children will be making their own pan pipes. Ensure that children understand how to cut the straws in order to create a sound. Children make their own set of pan pipes using straws. Their challenge is to make each straw create a sound of a different pitch. They should achieve this by cutting the straws to different lengths. Children explain how they can change pitch on their pan pipes on the differentiated Straw Pan Pipes Activity Sheet. Look for children who can apply their understanding of pitch to create their pan pipes. SEN/LA - Use the suggested key words to scaffold their explanation. MA/HA - Write their own explanations</p> <p>Challenge - explain that the different length straws make different sounds</p>	Slides
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Lesson Number: 5 Location: Classroom	Learning objectives: How do we absorb sound?	Lesson Outcome: Children write a letter about soundproofing.	
	Introduction: True or false quiz		Resources Boxes Wadding
	Main Teaching including differentiation:		

Absorbing Sounds: Children discuss reasons people may have for needing to absorb sound.

Soundproofed Studio: Explain the context of the investigation: a band have asked the children to select the best material to soundproof their studio. Children test the different materials by constructing boxes as a table and then soundproofing with a different material per table.

Select appropriate music on a phone and, at the front of the class, play the music and put it in the box. Children listen and describe the loudness, then complete the tables.

Activity

Children copy experiment method into their books and add the completed sheet with the results.

Then tell the Band! Children write a letter to the band with their conclusion, recommending the best material to use to soundproof the studio and explaining why it is the best choice. Look for children who can explain which features of the materials enable them to absorb sound.

SEN/LA - Use the sentence starters and key words to scaffold their letter.

MA - Use the sentence starters to scaffold their letter.

HA - Write their letters with no scaffold.

Challenge - Create a list of other materials besides the ones tested that people can use to soundproof.

Plenary

Children share their letters with the class.

Bubble wrap

Tin foil

Paper

Foam sheets

Worksheets

Noise maker (phone playing music?)